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Stakeholder responses to future flood management ideas in the Rhine River Basin: nature or neighbour in Hell's Angle

Peter E. van der Werff

Summary This article identifies responses of stakeholders to future management of the Rhine River Basin, notably to the plan *Rhine In The Future*. This plan foresees the construction of a bypass between the rivers Rhine and IJssel, the *Green River*. The *Green River* would be a nature reserve area that can be flooded during high water discharges. The inhabitants of the area would be permanently relocated. Their defence of stakes will be coloured by patterns of acting and thinking that belong to respectively *postmodernity*, *modernity* and *pre-modernity*. These different colourings show in negotiation skills, levels of organisations, alertness, power positions, and access to local and outside resources. Most local stakeholders appreciate the *postmodern* environmentalism that leads to the *greening* of river management, but regret the loss of their strong, *pre-modern*, social cohesion. Whereas they consider national interests in a rather balanced way, they doubt the necessity of the bypass for safety reasons. They have confidence in financial compensations for relocation, but will negotiate about these compensations with skill and determination. Their tactics will be reinforced by collective efforts that stem from their social cohesion.

Keywords Stakeholders · Floods · River basin management · Naturisation · Postmodernity · Modernity · Pre-modernity

One professor says 'it will be dryer', the other one says 'it will be wetter'.
We all have mobile telephones so we know it when the water comes.
The social cohesion of this community will be lost forever.
When you're not bought out you'll be the real victim.
We like to have a nature reserve area around here.

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Introduction

This article concerns responses of stakeholders who live in an envisaged wetland in the upstream River Rhine, east of the city of Arnhem. Here, ideas for the creation of a major wetland are launched that would serve the joint purpose of being a retention basin, a bypass during high water discharges, a nature conservation area, and an attractive place for recreational activities. As the wetland would be entirely inundated at intervals of 5–10 years, the residents in the area would have to be relocated. Notably the population of the hamlet of Helhoek, literally *Hell's Angle*, would be affected. The study aims at responses of local stakeholders to the far-reaching management ideas.

Proposals for the creation of a large wetland are not limited to this area alone. In the Netherlands it is widely recognised that changes in the physical environment are putting more pressure on the river system and require a far-reaching shift in water management. Basically two management approaches are being discussed here that are actually part of wider constellations in society and are usually labelled as *modernity* and *postmodernity*. The *modern* approach is found in the presently implemented flood plain policies and will be briefly reviewed and illustrated below. The *postmodern* approach will be further elaborated as it guides, among other things, the radical ideas for future river basin management under study here.

In abstract terms, attention is given to *modernity* as a wide set of established patterns of thought and behaviour, and *postmodernity* as a number of social trends, understood as ongoing changes in patterns of thought and behaviour. These trends may or may not result in more fixed, established, *institutionalised* patterns of thought and behaviour. Moreover, it is relevant to look at the interactions between *modern* established patterns

and *postmodern* trends. Such interactions take place between actors or organisations, as well as within the heads of individual actors or within organisations. Finally, the research is facing gradual and radical shifts that occur from *modern* patterns to *postmodern* trends, and from these trends to institutionalised patterns of *postmodern* thought and action.

The main *postmodern* feature that penetrates water management is the trend of *naturisation*, as it is locally called. It aims at preserving or restoring natural habitats, replenish groundwater stocks and benefit recreation. Simultaneously, it contributes to reducing flood risk. As such, it provides a means of adapting to sea level rise, higher river water discharges, soil subsidence, and increased density of flood plain habitation—all regarded as serious problems that threaten safety in the Netherlands.

However, the trend of *naturisation* is not only a logical response to these physical changes, but also a part of the gradual shift in thinking, from *modernity* to *postmodernity*. This shift has generated a number of ideas about reconstructing the Rhine and Meuse River basins (Ministerie van Verkeer en Waterstaat 2000). One prominent idea concerns the creation of the wetland bypass between the rivers Rhine and IJssel for the joint purpose of diversion and retention of excess water, and the conservation of wetland nature.

This so-called *Green River* would also bring the periodic submersion or isolation of farms, households and business firms. Notably, the population of the hamlet of Helhoek would need to be entirely relocated. Like other localities in the envisaged Green River area and elsewhere, the hamlet is known for its strong social cohesion that would be lost if the relocation would take place. This social cohesion can be regarded as part of *pre-modernity*.

The present research found a complex set of frequently changing relationships between *pre-modern, modern* and *postmodern* elements in the Green River area, of which the outcomes may very well determine the future river basin plans and measures. The article describes how these different elements and interactions create opportunities for actors to explore and exploit opportunities, and are sources of conflict and complication.

The next section reviews the three domains of *postmodernity*, *modernity* and *pre-modernity* in abstract terms, and applies these to water management in the Netherlands. The section 'River Management Options' describes a *modern* and a *postmodern* river management option and stakeholder reactions at the national level. The next section 'The Green River' provides details of the local Green River plan as part of the national *postmodern* option. The section 'Stakeholder Responses' describes stakeholder reactions to the Green River plan with an emphasis on *pre-modern* elements. The section 'Dealing with conflicts' depicts conflicting views and interests among local and national stakeholders concerning the Green River plan, mostly on the basis of experiences with earlier infra-structural works in the area. Finally the section 'Conclusions' provides conclusions and recommendations.

Modernity, postmodernity and pre-modernity in river basin management

Postmodernity, modernity, and pre-modernity

The trend of *postmodernisation* increasingly affects our thought and action in technology, economy, management, and recreation. In paraphrasing and citing a leading author about the subject, David Harvey (1989), this moves away from *modernity* with its emphasis on the search for mastery of a physical area as a totality by deliberately designing a closed form and constructing 'once-and-for-all' solutions. *Postmodern* planners tend to consider long-term processes, and view these as rather uncontrollable, full of uncertainty, or even chaotic—as processes in which anarchy and change are 'playing' in open situations. What emerges is the norm of seeking out pluralistic and organic strategies in approaching reality as a collage of differentiated spaces and mixtures, rather than pursuing grandiose plans based on functional, separate zoning of activities. This shift coincides with a denunciation of the reductionist *Enlightenment* worldview and its perceived powers of universally applicable science and technology. It rather entails a reorientation towards more openness, flexibility and intuition as the basis for decision-making and implementation (Harvey 1989; Toulmin 1992).

Postmodernity, as a noticeable shift in sensibility, practices and discourse formations (Huyssens 1984), can be regarded as *modernity* taking a critical look at it self although criticism of modernity is far from new itself (Bauman (1992). Additionally, Ulrich Beck (1992) prefers to position criticism of modernity not so much as *postmodern* but rather as *late modern*. He deems *modernity* able to regain control over major environmental problems by upholding and institutionalising its reflexive exercises. However, critics find Beck's argument that absolute control can be gained over such processes as the emissions of pollutants and toxins too impractical (Riddle 1998).

Broad circles in society aim an increased scrutiny of the *modern* belief system. A first core element of this belief system is the priority of instrumental rationality encapsulated in the reductionist worldview, earlier indicated as the *Cartesian* or mechanistic worldview. A second element in the set of *modern* beliefs is the conviction that progress is imperative and based on individual freedom and self-realisation. A third element is the idea of history as the linear development that occurred in Western Europe and would set the example for other societies in the World (Brand 1999:631–635).

In these societies, where *pre-modernity* is seen to dominate, people have remarkably close-knit communities based on personalised relationships. Such types of relationships can be called *many-stranded* (Wolf 1966) because of the inclusion of many aspects in the relationship between two people. They deliberately contribute to mutual care, social control and a large number of voluntary associations. Another *pre-modern* element is that local knowledge tends to be stored not only in documents and

stories, but also in behavioural patterns, making it difficult to change quickly but contributing to whatever behaviour has been proven to be beneficial for environmental sustainability. Yet another *pre-modern* element is that environmental management is not so much in the hands of national rulers as left to the experienced care of local communities (van der Werff 2001).

The three domains in water management

Like in other sectors, also in water management there is now a gradual shift from *modernity* towards *postmodernity* visible, including a diversion of power away from the nation-state and towards localisation and internationalisation. *Modern* river basin planners looked for monolithic 'once-and-for-all' projects, with the nation-state as the power centre having total control. Nature was supposed to be conquered. Examples of *modern* water management in the Netherlands are the IJsselmeer Works, with the large-scale reclaiming of land from the Zuiderzee, an inland sea, and the Delta works that were aimed at saving the province of Zeeland from seawater floods for all times.
Postmodern river basin planners, on the other hand, tend to consider long-term processes and wider contexts. They appreciate natural features and acknowledge the physical environment as rather uncontrollable in the long run. There is a shift from technocratically devised, state-controlled projects to flexible, integrative, nature-conserving projects, with power shifting to civil society, local authorities, and international bodies (see also Table 1). More appreciation emerges of organic, dynamic, unpredictable life in both society and nature (Harvey 1989).
The rise of environmental awareness itself may even spring from postmodernity. According to some, the rise of environmentalism does not so much relate to objectively measured deterioration of the physical environment, including climate change, but rather to contemporary changes in thinking and acting that stem from social sources. More precisely, the upcoming trend of environmentalism is seen as an 'integral part of the transformation of the cultural experience of space and time in the conditions of postmodernity' (Brand 1999).
Environmentalism in the Netherlands has led to the trend of *naturisation*. It emphasises the need for returning as much as possible to original natural situations. It attempts to integrate *hard core* technology and economy with *soft* biology and environmentalism. It stimulates the flexible integration of societal segments such as politics, governmental organisations, civil society and the private sector. It is part of the tendency towards more balance and interaction between top-down, authoritarian thinking and bottom-up, democratic thinking. *Naturisation* invites for comprehensive and flexible styles of analysis, policy making and implementation.
The trend of *naturisation* facilitates integrative thinking about hitherto separately treated functions of the river basins, such as flood safety, drinking water supply, fisheries, agriculture, residence, recreation and transport. It has generated a number of concepts about reconstruction of the Dutch river basins, including for the creation of so-called *green rivers* as retention basins and bypasses (Ministerie van Verkeer en Waterstaat, 2000). The idea for a *Green River* east of Arnhem, between the rivers Rhine and IJssel, is a one of them.
Remarkably, for naturisation planners it is not difficult to see the value of social cohesion in villages such as Helhoek. Apart from wide differences, both *pre-modernity* and *postmodernity* pursue integration, through acknowledging the interacting forces of both natural elements and social elements. Whereas the trend towards *naturisation* keeps defending technological and economic interests along with applying high standards for safety, it adds the restoring or safeguarding of organic unity in the physical environment. This addition would contribute to the viability of the nature-society systems in the long run.

River management options

The modern option

Adequate safety measures retain the highest priority in the Netherlands. A prominent project aiming at such safety is still *modern* in approach. It is being launched as *Room for Rivers* (*Ruimte voor Rivieren*). It is devised in a top-down way by technocratic centres at the national level. It joins in with the policy of reinforcing of existing dikes during the 1990s and aims at deepening the flood plains that border the summer course of rivers and removing constructions that hamper the flushing of excess water.
The project *Room for Rivers*, then, regards the deepening of flood plains with about two meters. The governmental water management department *Rijkswaterstaat* favours this plan and is now implementing it. The project is supposed to increase substantially the water discharge capacity and does not affect the land use pattern outside the sparsely inhabited flood plains. It keeps societal upheaval and political controversy reduced and therefore precludes conflicts with civilians and politicians that officials tend to avoid.
Opponents to the *Room for Rivers* project claim that siltation of the flood plains will continue which makes the solution unsustainable. Moreover, still hundreds of houses

Table 1
Analytical dimensions in water management

	Pre-modernity	Modernity	Postmodernity
International level	Insignificant	Isolated policies of Nation-states	Treaties European Union
National level	Insignificant	Authoritarian approach	Interactive approach
Local level	Responsibilities of local bodies	Dependent on national government	Co-responsibilities of civil society

and other constructions would be inundated or have to disappear (Rijkswaterstaat 1999; Agrarisch Dagblad 1999; De Gelderlander 1999; De Volkskrant 1999; Trouw 1999). A recent study found that costs for removing about 500 enterprises in the flood plains would take more then 700 million guilders (Metro 1999).
Another counter-argument to *Room for Rivers* is that the project does not really tackle the phenomenon of high river water levels in a comprehensive and environmentally friendly way and is therefore unrealistic in the long run. The safety of downstream areas in the western parts of the country is seen to improve more if, in the event of high discharge, floodwater can be temporarily diverted and stored in eastern, upstream areas of the country and flushed northward to the sea. Therefore, in this upstream area, measures for local safety, storage and flushing have to be combined.

The postmodern option

The *modern* thinking behind the project *Ruimte voor Rivieren* is offset by the rise of *postmodernity* in Dutch river basin management. It shows a number of trends of which many have integration as a common denominator:

- Simultaneous consideration of short-term and long-term perspectives.
- Simultaneous consideration of diverse parts and functions of the physical environment.
- International collaboration.
- Collaboration between various governmental bodies.
- Collaboration between decision-makers and the providers of knowledge.
- Participation of the private sector and the civil society in government domains.

This set of trends became evident in the international conference on integrated water resources management Living with Water (IAWQ, EWPCA and NVA 1994) and the subsequent publications by Van Rooij and others in *European Water Pollution Control* in 1995, 1996 and 1997. Similar trends are visible in the rather far-reaching approach for future river basin management called the *Green Option*. The approach led to a broad plan to provoke a discussion about profoundly different styles of water management in the country. It was designed by the research institute *WL/Delft Hydraulics* and launched under the name *Rijn op Termijn* (*Rhine In The Future*) in 1998. The plan starts out with the assumption that water discharge levels in the long run could become higher then the levels assumed by *Rijkswaterstaat* in justifying the self-imposed limitations of the *Room for Rivers* flood plains project. The designers of *Rhine in the Future* do acknowledge that such higher discharge levels are very uncertain. If they nevertheless come forward with their plan it is notably to introduce a new type of thinking about future river basin management.
This new, *green*, approach emphasises the importance of interconnecting various physical elements of the river basins. It considers interactions between surface water, ground water, quantity and quality of these waters, soils under and next to water-bodies, ecosystems in the river basin, and the built environment. It provides ample space for organic, self-regulatory dynamics in the river basin. More practically, the *Rhine in the Future* plan envisages changes throughout the Dutch Rhine Basin. Its main feature, though, is the reconstruction of the IJssel River that branches off the Rhine in the upstream part of the country towards the north. It suggests increased (2:7) channelling of water through the IJssel and the development of retention zones on agricultural land that can store floodwater to either subside into the soil or be flushed later on. See also Figs. 1, 2.
The arguments for the new role of the IJssel valley are manifold. First, the alternative of channelling more excess water through the flood plains of the river Rhine to the downstream, western part of the country is more expensive. The eastern part has more farmland, which is more suitable for periodic flooding than the densely built western part of the country. Second, the government aims at decreasing the total acreage of farmlands already. Third, the eastern provinces have in any case to deal with increased flood risk and organise for storing and flushing of excess water. Fourth, eastern ground water levels are

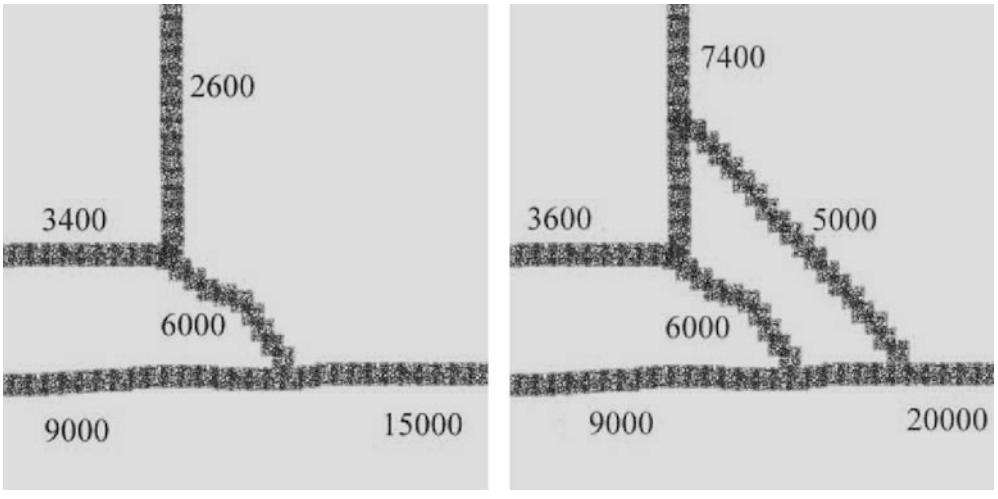

Fig. 1
Current (*left panel*) and proposed future (*right panel*) distribution of the Rhine's peak flow over its branches. The 5,000 m^3/s branch is additional and only used in times of high water. It largely relies on an earlier branch of the river. After: Delft Hydraulics (1998)

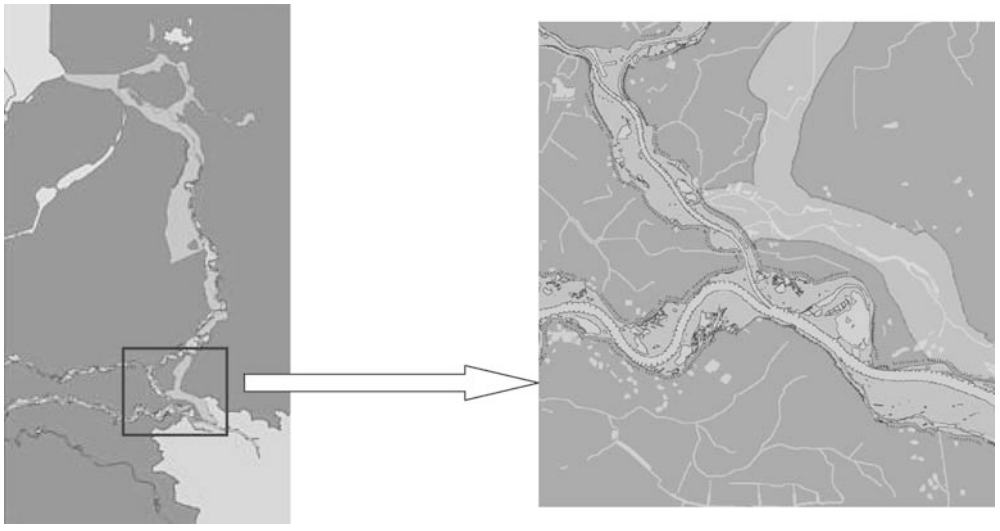

Fig. 2
The proposed bypass and restructured IJssel River. The *light areas* are currently flood-safe, but will occasionally flood in the proposed situation. Source: Delft Hydraulics (1998)

lowering which creates increased shortages during summers. Fifth, wetlands and woods are planned that enrich the natural quality. Sixth, the enriched nature will attract additional tourists that benefit local trade.

First reactions to the postmodern option

The authors of *Rhine in the Future* emphasise that the proposed project is environmentally very beneficial in the long run but socially and politically difficult in the short run. According to the public relations officer of the project, it drew attention from government bodies, newspapers, municipality administrators and interest groups (see NRC Handelsblad 1998). In general, as one informant states, civil servants find the plan too radical and hope that during their term they don't need to decide on such a far-reaching affair. National politicians lend a better ear to the plan and the Minister of Transport and Water has asked three advisory committees to include the *Rhine in the Future* plan in their studies.

Again according to the public relations officer, reactions to the plan at the level of the IJssel region vary between extremes. Provincial politicians are interested but want to study the plan in detail before giving official statements about it. Representatives of inland navigators reject the plan because of reduced shipping possibilities on the IJssel. Nature conservationist organisations, on the other hand, strongly favour the turning of farms into lands and waters that are rich in bio-diversity.

Residents and farmers tend to have the *not in my backyard* (NIMBY) reaction, while asking why the poorer east should bleed for the west with its higher prosperity and political power centres located there. In addition, some farmers oppose the idea of exposing their land to increased flood risk, while others hope to receive ample compensations for giving up farming. On the other hand, as will be described below, the field study shows that local stakeholders are quite well aware of the need for public measures and their personal interests in these measures.

The feelings of concern, mistrust and outright opposition are reinforced as the *Rhine in the Future* plan is designed by physical scientists without prior stakeholder consultation, or attention paid to compensation arrangements. A furious opponent of the plan is the mayor of the Twello municipality, halfway along the IJssel River, who is also chairman of all river municipalities in The Netherlands. The designers of the plan will visit the Twello municipality council in order to discuss environmental, societal and financial details.

The Green River

The plan

At the detailed empirical level, the present research included a field study undertaken among stakeholders living in the eastern part of the province of Gelderland. Here, in the area between Lobith at the River Rhine and Doesburg at the River IJssel, the *Rhine in the Future* plan envisages a major wetland that would function as a by-pass and retention basin during high water discharges in the River Rhine.

This area is essential for the success of the entire plan. A large extension of the water volume flushing from the River Rhine into the IJssel Valley is not possible at the present point of branching off near Arnhem and Westervoort because of dense settlement directly bordering the rivers. Yet, channelling much more water through the IJssel is required to relieve the western part of the country. Therefore, a new connection has been opted that bypasses Arnhem and Westervoort and actually makes a shortcut from the Rhine upstream to the IJssel downstream of these urban settlements.

The bypass will be about 25 km long and about 2 km wide. No channel will be dug out; excess water will just inundate the area. Both existing and new dikes of 3–5 m high will border the intended area. The bypass is not only meant for the flow and retention of excess water, but also to function as a nature reserve area or *eco-corridor* with an enriched diversity of trees, plants, animals and micro-organisms. This last function gives the intended bypass its name of *Green River*.

The Green River starts close to the German border, near the village of Spijk. It runs to the northwest and emits in the IJssel near Giesbeek. The first part of this bypass is a system of old riverbeds (*strangen*) of the Rhine, and therefore called the *Rijnstrangen* area. After some preliminary changes during the twentieth century, the Rijnstrangen area was closed off from the Rhine by a dike near Spijk in 1959 and preserved as a nature reserve with sparse habitation. Farmers were bought out by nature conservation organisations and moved to Canada, USA, Portugal, France, Germany and Poland.
Compared to other parts of the radical *Rhine in the Future* plan, opening up the *Rijnstrangen* area for excess water will not be too much of a problem. Some forty houses and farmsteads will have to disappear or face the risk of periodic inundation. Only minor roads cross the first part of the Green River. During periods of inundation ferry services would facilitate local transport.
Realising the second part of the Green River, however, would be a major operation with serious consequences. The water would have to cross a chain of villages and the best place is in-between Zevenaar and Duiven, where the Green River will affect the least number of inhabitants. Nevertheless, here hundreds of families in and near the hamlet of Helhoek would have to leave hearth and home forever to give way for the Green River. The residents of the outskirts of Zevenaar and Duiven will come to face new dikes of 3–5 m high along the Green River.
Bridge or tunnel constructions will be needed for the Green River to cross railways, the highway to Germany and some local roads. Once flowing beyond this infrastructure and the hamlet of Helhoek, the water will broadly follow a streamlet and inundate sparsely populated farmlands before emitting into the IJssel River near Giesbeek.

Invasion of Helhoek

For the local residents the alternative of being evicted would be to remain living in Helhoek with the risk of a flood once in 5–10 years. Nuanced protective measures can be taken in case the area around the houses is submerged. However, submersions will not be the only things that come to Helhoek. A number of large infra-structural projects will be invading the locality. The national railway-company (*Nederlandse Spoorwegen*) plans three railways to pass through Helhoek in the near future. First, there is the so-called Betuwelijn, a freightrailway to Germany that is being constructed at present and will join the existing railway in Zevenaar. It will come to run through a new trench to reduce noise pollution for residents.
Second, the same railway trench may be broadened again for the high-speed railway line between Amsterdam and Cologne. Third, there is a plan to construct a northern branch of the Betuwelijn that may come to run right on the main street of Helhoek. Although the national government officially cancelled this plan in 1999, at the provincial level there are still forces that aim at continuing with it.
On top of that all, *Rijkswaterstaat* will broaden the highway to Germany that borders the north of Helhoek from four to six lanes and construct a new highway from southwest to northeast and connect that to the highway to Germany.
Although plans like that of the northern branch of the Betuwelijn may be reconsidered from time to time, some of these plans will certainly be implemented. However, these plans have no provisions to let the Green River bypass flowing over or under the intended constructions. Yet, the *Rhine in the Future* plan, and therefore perhaps the entire Rhine flood protection in the Netherlands in the future, depends on the realisation of the Green River.
So, in order to realise *Rhine in the Future*, its protagonists need to convince the powerful *Nederlandse Spoorwegen* and *Rijkswaterstaat* of the importance of the plan. These organisations will have to invest large amounts of money not only to let the Green River cross the *dry* infrastructures, but also to build the Green River with sophisticated technologies in order to accommodate the local population and allow the conservation of nature in and around Helhoek.
The authors of *Rhine in the Future* may find support among the Gelderland provincial authorities, the Waterboard Rijn and IJssel, the municipalities involved, NGOs for nature conservation, as well as the tourist business. Over the heads of the Helhoek people, these probable protagonists may have to negotiate with the *Nederlandse Spoorwegen* and *Rijkswaterstaat*. But whatever result follows from their negotiations, the population of Helhoek is going to face major interventions in the form of railway and motorway constructions and, if the Green River is realised, periodic submersion of the hamlet or a complete relocation.
It is for these reasons that the following sections concentrate on how stakeholders in the envisaged Green River area, and notably Helhoek, regard their coping with the large infra-structural plans. The research has discussed the plan with residents and other stakeholders who will be most affected by its implementation. It sheds light on their thinking of the future, including climate change, high water levels, water management solutions and the distribution of advantages and disadvantages.

Stakeholder responses

In my backyard

This section contains citations in spoken language that indicate thinking of Green River stakeholders about how to deal with future management alternatives. In the words of Harriette Marshall, when writing about discourse analysis, these texts are repertoires as culturally embedded and socially communicated, shared systems of meanings, or versions of cognitive processes, actions, policies and other phenomena (1995:91–93).
'You see, if the government wants it, we can't stop it. The new railways are coming. The new motorways are coming. So, the Green River will also be coming. We, of course, wonder about the reasons behind this bypass project. Is it really needed? There are more floods, that is true, but the

government allowed too many constructions in the flood plains. These should be removed and the flood plains deepened. Now, finally, they start doing something about it. That should be sufficient.
Will there be more rain in the future? Is that because of climate change? Listen, one professor says 'it becomes dryer', the other says 'it becomes wetter.' So, what do we simple citizens know about it. That's for the professors and the government to decide. Oh, is it not a plan of the government? Well, some people will get rich from it, isn't it? Sure, we like to have a nature conservation area around here. We can go for horse riding, cycling, canoeing, and taking out the dog for a walk. Tourists will come and spend money, which is good for the local shopkeepers. But the risk of river floods is very small once the flood plains have been deepened.
We are not so afraid of floods. We have centuries of experience with the river. We all have mobile telephones nowadays (*we hebben tegenwoordig allemaal een GSM-etje*) so we know when the water comes. In the basement we put the machines on chocks (*opklossen*) to keep them dry. If the water level rises too high we simple drive away. Or we become just like Noah. We get in the boat and sail to the nearest hill (*we stappen in de boot en varen naar de Eltenberg)*. Only the immigrant families (*import*) don't know what to do exactly.
If this Green River project is really implemented the water will have to cross a number of motorways and railways. How are they going to arrange for that? And if they manage to build bridges or tunnels to allow the excess Rhine water to flow here, most of us will have to leave. We'll get financially compensated for that; we don't doubt that too much.
The real loss will be the quality of social life in this close-knit community. The immigrant families also came to appreciate the friendliness, the many flourishing associations (*het bloeiende verenigingsleven*) and mutual help of neighbours (*noaberplicht*). They work somewhere else and just wanted to live in the countryside.
Some of us may have to leave and get financial compensations for it. Others will stay without financial support and living in-between all the new constructions that are planned right here before the Green River might come. These people will be the real victims. They will live in *infra-structural islands*, being isolated and facing the monsters of progress.
We also like to get quickly to other places every day, but all these new highways and railways, my oh my, Holland is organised well enough with the present infrastructure. The Betuwelijn for freight transport is more an object of prestige for national and local politicians than economically viable or reducing road transport and air pollution. The northern branch is even less required. Only Germany is going to benefit. The construction works are planned without proper co-ordination. Building the Betuwe railway, and later on the High Speed Line along the same route will take twenty years. If they do it at the same time it takes only ten years. *Rijkswaterstaat* says that these projects have separate trajectories of preparation. The last project has to be adjusted to the earlier projects.
The officials also say that they have to deal with many locations where roads and railways will pass. So, why should they pay extra attention to Helhoek? But we think that they are just inflexible blockheads, not talking to each other, wasting millions of guilders of tax payers' money on extra salaries and commissions, and burdening the residents here with the nuisance of subsequent works under construction.'
These and other statements indicate two striking implications once the Green River would be developed. First, the relocation of probably the entire Helhoek population means the loss of precious social cohesion that has been preserved in the community so far. Second, the local stakeholders negotiate the terms of relocation as a well-organised group of people, with experience and skills gained in plans for earlier infrastructures. The next two paragraphs discuss these two implications respectively.

Helhoek's social cohesion at stake

Helhoekers explain in different ways the high level of social cohesion and, as they perceive it, the good quality of social life in their community. One argument was that the wider area of the Achterhoek is known for a settlement pattern of small farmer families that reside spread out and as compensation revert to strong social organisation. Another argument is that Helhoek and Groessen are Roman Catholic communities surrounded by a majority of Protestant communities historically which brought the Catholic minority all the more together.
In order to prove that relative isolation of a village creates strong cohesion examples are given of fishermen's villages such as Volendam, Katwijk, Spakenburg and Urk. Here the perspective was aimed at the sea, connections with the inland population remained weak, and social cohesion was strong enough to keep the community traditional and secularisation limited.
To some extent, the arrival of ecological sustainability ideas harbours the risk of bringing submersion of such closely-knit communities. Though regretted by its proponents, to be certain, the *greening* of the Rhine River basin may bring the end of the Helhoek community. National and ecological interests will come to dominate and destroy local and social interests of which, according to the interviewees, social cohesion is the most precarious of all. This cohesion shows in social contact that surpasses the functional, *single-stranded* interactions between a shopkeeper and a customer, a teacher and a pupil, or one neighbour and the other. Rather, *multi-stranded* relationships dominate in which people maintain contacts for a number of reasons and meet each other at many different occasions. Also, customs of mutual help exist among a large majority in the community. Though social control is rather far-reaching, it is not felt to be restrictive or suffocating but offering meaning, support and prevention of petty crime. It is actually described as being applied with a certain wisdom and friendliness.
Immigrant families are welcomed in direct personal ways but also with a ceremony performed by a number of Helhoekers assembled for the occasion. Most newcomers appreciate this attention and become rapidly integrated in

the community life. Just a few families declined the elaborate welcome and prefer to live more independently, which is rather well accepted or understood in the community.
Social events are not only organised to welcome immigrants but for other occasions as well. Winners of sports prizes are celebrated, sick people receive attention in adjusted ways, and old aged people are honoured at jubilees. A large number of voluntary associations are responsible for the organisation of these events. They either operate in the village of Groessen that includes Helhoek, or in the hamlet of Helhoek alone (see Table 2).
The central one is the Neighbourhood Association Helhoek (*Buurtvereniging Helhoek*). Other such associations in Groessen are of Diesakkers, Lijkweg, and De Woerd. The one in Helhoek has existed for 20 years, has 58 households as members, and conducts 5–6 annual events in addition to special events for children, adults, marriages, funerals and other *rites de passage* for people at important points in their lives.
Perhaps the most important festival period is in the third week of September when fun fair (*kermis*) is held. The festivities start with a mass in the church on Saturday at 6:00 PM. The Rifle Club conducts shooting contests on Sunday where all *real* inhabitants participate. The elementary school is closed so that the children can along with the adults join the full-day party in the honour of the shooting champion (*Schutterskoning*).
The carnival association *De Deurdraaiers* holds an annual procession of about 25 floats and a party in a tent for about 2,000 people from Helhoek and nearby villages. The Children's Committee is active for the celebration of Queen's Day on April 30th, and St. Nicholas evening on December 5th. The Charitas association *Vincentius* collects money door to door about every week. Other associations organise regular and incidental events for religious purposes, make music or have sports games.
The communities of Helhoek and Groessen, both being part of the Duiven municipality, are closely intertwined. If the Green River is implemented, Groessen is likely to be spared. Groessen is the larger one of the two villages with about 1,600 inhabitants as against about 200 in Helhoek. Roman Catholicism is the only religion in Helhoek and Groessen, with an exception for some immigrant families in Helhoek; Groessen has no *import* families. Helhoekers depend on the priest and the family doctor who live in Groessen. Most children go to the elementary school in Groessen and secondary schools in the nearby villages of Zevenaar and Duiven.
The frequent meetings and activities, including the joint efforts to prepare all these events, are felt to give much mental satisfaction. Privacy, on the other hand, is certainly appreciated for oneself and respected for others. The skills to maintain a proper balance between contact and privacy are consciously applied, discussed and reconsidered, and after all constitute social capital that has been accumulated by trial and error over a long period of time.
The remarkably strong social cohesion in Helhoek does not mean that all internal relationships are full of harmony. It means that both harmony and conflict exist in the local network of dense, multi-stranded relationships. The local cohesion also does not mean that all external relationships are discordant. It means that both harmony and conflict can occur in the external contacts as well. At the same time, Helhoekers have the clear-cut possibility of common activities in the outside world at their disposal.

Table 2
List of associations in Helhoek

1.	*Buurtvereniging Helhoek*, neighbourhood association
2.	*Katholieke Plattelandsorganisatie(KPO)*, Roman Catholic rural organisation
3.	*Gelderlandse Land- en Tuinbouw Organisatie (GLTO)*, farmers' organisation
4.	Groups for various services in the Roman Catholic Church
5.	*Groessen in Protest (GRIP)*, interest group dealing with plans for infrastructures
6.	Brass band *St. Andries*
7.	Show band *KDO*
8.	Children's choral society
9.	Youth choral society
10.	Women's choral society
11.	Men's choral society
12.	*Vita Nova*, general choral society
13.	Riffle Club *EMM*
14.	Shooting association *Irene*
15.	*Sportclub Groessen*, soccer club
16.	Handball club
17.	Judo club
18.	Cycle club (occasionally organised)
19.	Gymnastics club (occasionally organised)
20.	Card playing club (occasionally organised)
21.	Scouting club for young girls (*kabouters*)
22.	Scouting club for young boys (*welpen*)
23.	Scouting club for older boys (*scouts*)
24.	Old age society *De Bejaardenbond*
25.	Youth society *Rinoceros*
26.	Charitas association *Vincentius*
27.	*De Zonnebloem*, association taking care of the sick at home
28.	Bearers' association, functioning at funerals, of about 25 men
29.	Children's committee
30.	Carnival association *De Deurdraaiers*

Helhoek's social cohesion against interventions

Disregarding the envisaged Green River, the local stakeholders deal already with a number of infra-structural works that are either being implemented or planned. In Helhoek and Groessen the pressure group *Groessen In Protest* (GRIP) is busy studying the Green River plan along with other plans to redesign the Rhine River basin. GRIP was originally established in 1990 in order to deal with the planning process for the Betuwelijn, the freight railway from Rotterdam to Germany. A number of houses, farms, gardens and small enterprises were to be left. The potential evictees and other local stakeholders to be affected by the new railway united in the action group. They developed an agreement that all members would defend interests jointly as long as possible whereas if it came to negotiate individually about damage and compensation they were free to do so, with the help of specialised lawyers, and without being blamed by the others.

The approach of joint action to be followed by individual action worked out well in dealing with the Betuwelijn project and will be applied again in preparatory stages for other railways and motorways and, if it comes, for the Green River. During the period 1999–2000 GRIP co-ordinated a joint protest of 14,000 notices of objection against the track for high speed trains from Arnhem to Germany.

One of the consequences of sending notices of objection, for that matter, is that each sender is placed on mailing lists of government bodies to inform local stakeholders about infra-structural projects. It is because of this policy that large numbers of stakeholders receive detailed information about relevant plans. In addition, they are informed by the chairman of GRIP, who is a member of the sounding board group of stakeholders for *Rijkswaterstaat*, the national government body for *wet* and *dry* infrastructures.

GRIP also operates to raise awareness about the possible construction of the new infrastructures, such as the Northern Branch of the Betuwelijn railway. GRIP organised a cycle trip of 25 km in the area where this Northern Branch would come. It applied visual demonstration of effects for the cyclists to see on the way. The slogan of the action was *We worden verkocht voor een appel en een ei*, which means literally *We are sold for an apple and an egg*, or *We are sold for a song*.

Most of the farmers are members of the vigilant Farmers and Horticulturists Organisation LTO (*Land- en Tuinbouw Organisatie*). Groessen has many fruit growers with a minority of stockbreeders. Helhoek still has only six farmers: five dairy farmers and one pig farmer. Three other farmers have left recently. In the southern part of the intended Green River, near the present river Rhine, farmers were bought out to give way to the new nature reserve area called Rijnstrangen. One farmer went to Canada and three settled down in the USA.

There is no strong organisation for the about 40 small-scale enterprises in Helhoek, including industrial workshops, freight carriers and shops that would have to move to other places. However, the entrepreneurs are expected to strongly negotiate financial compensations. They are less involved in the social life of Helhoek then the resident farmers and are rather used to shifting their locations.

Most residents will negotiate cleverly. Original residents will feel that the loss of social life can hardly be compensated with money but they may tend to negotiate in a balanced way. Newcomers, *the import families*, have started to appreciate the value of local community life and also feel that to be at stake. However, while keeping their jobs in nearby urban centres they did settle in Helhoek especially for the quite natural environment. They may first oppose fanatically any plan for relocation and later on negotiate the terms of relocation with the same fanaticism.

Dealing with conflicts

Internal conflicts

In more general terms, how may Helhoekers react when the Green River is going to be realised? First, some of the old residents may reflect the historical situation in which the villagers were rather docile and let themselves be told what to do by authority figures such as the priest and the landlord. However, the majority of the population has quite a fighting spirit, with organised farmers and the younger generation in front. Moreover, Helhoekers have gained experience with earlier plans for large infrastructure works where they learned to operate as a well-organised group of people.

Second, it is not likely that they will fight like lions against everything new or external. It is the type of social sophistication related to the social cohesion of Helhoek that may guide behaviours in the contacts with planners of the Green River. Helhoekers maintain a multitude of external contacts in the present day and there also demonstrate, with variations, a certain sense of social wisdom or sophistication. The local stakeholders are certainly willing to consider the needs of wider society and ecology, while at the same time assertively defend their stakes.

A third type of reaction by Helhoekers to a possible Green River project in the future would be that they clearly see their interests at different levels of scale. They themselves as well as others, such as relatives and colleagues, have stakes in the quality of large-scale infrastructure, and economic and ecological sustainability. They are not only influenced by but also push forward wider social trends such as democratisation of planning and decision making, internationalisation of river basin management, naturisation of civil engineering and pursuing integration of environmental parts. Table 3 enlists the divergent and conflicting interests that the actors consider simultaneously in order to maintain balance.

The Polder Model

The fourth type of reaction by Helhoekers to a Green River that would flood their hamlet has to do with conflicts between stakeholders and can be described as shaped by the *Polder Model*. This model indicates the Dutch cultural feature of a predominance of compromise over confrontation. The Netherlands are even known abroad for this *Polder Model* that shapes important decision making

Table 3
Internal conflicts

Stakeholders	Divergent interests
General	Local and national interests
	Long-term and short-term interests
	Economic and safety interests
	Green vs. technocratic orientation
Residents	Lower real estate prices vs. nature reserve nearby
	Long-term and short-term interests
	Green vs. technocratic orientation
Farmers	Financial compensation vs. loss of social cohesion
	Green vs. technocratic orientation
Entrepreneurs	Financial compensation for moving vs. worries about moving
Commuters	A15 noise, landscape pollution vs. less rush on the way to work in the Arnhem area
Socialists	Green vs. technocratic orientation
Conservatives	Green vs. technocratic orientation

processes through negotiations instead of conflicts that can lead to deadlock situations or do more damage to the common good then necessary. The *Polder Model* is notably famous for bringing together trade unions, employers and the government annually to decide on wages levels while considering employment rates, inflation and other macro-economic factors.

This *Polder Model* can be seen as part of a wider trend towards increased democratisation and co-responsibility in Dutch society. It goes hand in hand with high levels of education and information among citizens, the *civil society*, and a diminishing gap between government circles and local communities with regard to felt needs and concerns. The emergence of this *Polder Model*, imbuing the entire Dutch society, is also likely to affect interactions between local and external stakeholders about a futuristic Green River plan.

Perhaps the best example of the *Polder Model* applied in Helhoek is the project on perspectives of various groups of stakeholders regarding the Green River organised by the *Liemers College*, a high school in the bordering village of Zevenaar. Teachers and students of the section for preparatory scientific education (VWO) organised a study to assess the Green River plan as it was published in the media.

Students made biological and geographical studies to see environmental consequences and design smart solutions for having both a nature reserve area and maintain living conditions for residents and entrepreneurs. The results were presented in an exposition in the school building. Other students interviewed a number of stakeholders to find out various interests and perspectives, including from residents, farmers, industry, transport, nature conservationists and municipality officials. The students simulated the complex communication about different interests in a workshop, in order to learn remaining in contact with each other even if stakes and opinions were widely diverging.

Abbink's backyard

However proper the above generalisations may be, they tend to conceal what conflicts of interest individual stakeholders can come to face. The case of farmer Abbink's family living in the northern part of Helhoek provides an illustration of such particular details. According to the judgement of the researcher, aiming at the minimisation of subjectivity and maximisation of integrity, their case can be seen as rather representative of the farming community in the envisaged Green River area. In an extensive interview the family members explained their responses to government interventions over the last decade that may indicate how they would respond to the construction of the Green River. Table 4 presents a number of such interventions and how these have affected the farm and the family.

On the one hand, the Abbinks appreciate most of the measures as aiming at the common good and benefiting the family as well. On the other hand, they point at negative consequences in the form of material losses, newly created dangers and uncertainties, lack of financial compensations, and disrespect for their personal feelings.

Table 4
The Government and Farmer Abbink

Government intervention	Effect for Farmer Abbink
Completed	
Redistribution of land (*ruilverkaling*)	Appeared to benefit development companies
High voltage lines	Radiation. Risk of electrification. No information
Gas pipelines	Cracks in the walls. Not repaired
Faster N810 road	Casualties
Acidic manure reduction	Too costly. Risk of bankruptcy
Greening of agriculture	Low-protein hay
Greening policy in general	Agricultural education includes the environment nowadays
Possible in near future	
Broadening of highway A12	Disconnection from land at other side of road
Industries along A12	Disconnection from land at other side of road
Construction of highway A15 from Betuwe	Right through the stable
Construction of *Noordtak* freight railway	Right through the kitchen
Possible in far future	
Green River	Relocation of the family and farmstead

One of the most serious complaints is that decisions about possible interventions are often postponed or several times reversed. This pattern is felt as creating *swords of Damocles* that hang over the family's heads for prolonged periods while they can fall on them any moment. Will the Abbinks really have to move entirely to a new location, yes or no? Will they have to move this year, or only after ten years? Should they decide to move before the children of the eldest son go to school? Should they invest in a high-tech cow-stable in Helhoek or in their new location? Can they afford a delay considering changes in the dairy market and agricultural politics of the European Union? As Farmer Abbink said: 'the authorities ignore such worries. It eats away my stomach.'

Conflicts between parties

The generalisations about Helhoek's social sophistication and the Dutch Polder Model not only conceal individual problems such as of Farmer Abbink, but also the conflicts that are battled out and may affect a future Green River project. The relocation needed for the project would not be the first one in the Netherlands and lessons can be learned from earlier ones.

In several instances, numbers of houses, firms and even entire communities have been removed to make space for new infrastructures in the Lowlands. In order to extend the harbour areas of Rotterdam, Antwerp and Amsterdam not only scattered buildings but also complete hamlets and villages have been demolished and populations relocated over the past few decades. A few individuals and communities, such as the vocal artists' hamlet of Ruigoord near Amsterdam, have been able to resist pressures from the government on a permanent basis. Other residents, farmers and entrepreneurs have developed knowledge and skills to exert more compensation from government

departments in exchange for their relocation and other damages suffered.

For comparative reasons one may think of large infrastructural projects in other societies, such as the complex of dams in the Narmada River basin and the Theri Dam in India, or the Three Gorges Dam in the Chang Jiang River in China (Roy 1999). Here, in Asia, the distance in social power, levels of information and material interests of planners and construction companies on the one hand and local populations on the other is about as vast as the projects and the damage that they inflict on evictees and ecology. Such distances are rather reduced in the Netherlands, which contributes to easier and more constructive types of negotiations between planners and population.

Nevertheless, several types of conflict between parties are observed that occur at present and may happen when the Green River is to be implemented (see Table 5). A major encounter occurs between the national *postmodern* emphasis on ecological systems and the local, *pre-modern* tendency of preserving the social cohesion. The futuristic river flood risk management that emerges clearly collides with the much-acclaimed social life of agrarian villages such as Helhoek. The choice would be between ecological reconstruction and village cohesion, between nature and neighbour.

Farmers are involved in several structural conflicts of interest with other parties. Two explanations for this prevail. First, farmers are an effectively organised professional category and operate both within and against the societal establishment with keenly developed skills such as of organisation, lobbying, legal advice, publicity, and physical activism.

Second, farmers are in a way caught in-between *postmodernity* and *modernity*. They feel they are under high pressure from both the government and public opinion to reduce their large-scale production and environmental pollution, and produce healthier food. They partly accept these demands as reasonable, and partly as in conflict with *modern* demands to heavily increase production and productivity as these emerged in the decades immediately after the Second World War.

Perhaps the fiercest conflict exists between farmers and environmental activists. A notorious conflict arose with the late, radical activist group *Lekker Dier* that urged for better living conditions for the domestic animals. The group deployed physical confrontation tactics in the style of Greenpeace actions and managed to draw similar attention from the press. Farmers however felt deeply offended and misunderstood by the aggressive interventions on their territory and in their operations.

Farmers also feel misunderstood by nature conservation officials such as belonging to the Ministry of Agriculture and Nature Conservation. New regulations are issued to stimulate environmentally friendly farming but farmers often feel these regulations reveal a lack of proper knowledge of affairs. Also, the farmers feel that new conservation projects as implemented by the government forest department *Staatsbosbeheer* often show a lack of knowledge or consideration of the effects for agriculture. Just south of Helhoek, Staatsbosbeheer creates a nature conservation area and foxes are put out. These foxes, as one farmer complains, do not restrict themselves to the boundaries of the area but go on nightly prowls to neighbouring farmsteads at distances of tens of kilometres.

Table 5
Conflicts of interest between parties

Conflicting parties	Stakes
Government departments	Power
Government vs. local population	Top-down measures vs. local interests and initiatives
Country vs. local population	River basin management vs. 'not in my backyard' (NIMBY)
Green officials vs. residents	Nature conservation vs. social cohesion
Technocrats vs. *postmodern* managers	Large project construction vs. long-term ecological approach
Green officials vs. farmers	Green farming measures vs. *modern* farming
	Nature conservation vs. nuisance for neighbouring farmers
Activists vs. farmers	Animal protection vs. economic productivity
Residents vs. commuters	Peace and quite vs. smooth highway traffic

Conclusions

The present study identified responses of stakeholders to future management of the Rhine River basin, notably to the plan *Rhine In The Future*. This plan foresees the construction of a bypass between the rivers Rhine and IJssel, the *Green River*. The Green River area would be flooded during high water discharges. The inhabitants of the area, especially in the village Helhoek, would be permanently relocated both for their safety and in order remove obstacles to the flow of water.

Responses in three domains

The stakeholders in the Green River area appear to be influenced in their responses by the three domains in which they operate: *modernity*, *postmodernity* and *premodernity*. They act within the *modern* domain by maintaining instrumental, single-stranded relationships that deal with only one aspect of life. They mostly engage in such contacts with actors outside their own village community. In doing so, they benefit from and contribute to *modern* state arrangements, technological innovations and economic growth, and suffer from technological drawbacks, a reductionist worldview, and to some extent, social alienation.

They take part in *postmodern* developments as well. They contribute to, are influenced by, and are informed about trends such as more openness, intuition and flexibility in decision-making regarding society and environment. They understand the wisdom of combining safety with ecology of the river basin. They increasingly participate in planning processes. They consider the necessity of interna-

Table 6
Local stakeholder responses

Serious doubts about:
- Climate change
- Much higher discharge levels
- Need for a bypass
- Impersonal interests in 'The Hague'
Awareness of contradicting interests:
- Local interests vs. national interests
- Economic interests vs. safety interests
- Economic interests vs. nature interests
- Comfort of infra-structures vs. nuisance of infra-structures

Table 7
Implications of a future relocation plan

Resistance or negotiation:
- New families will concentrate on resistance
- Old families will concentrate on negotiations
Negotiations will be based on:
- Strong social cohesion
- Experience with dry projects
- Reasonableness, Polder Model
- Trust in getting full financial compensation
Felt costs:
- For those who remain: infrastructure islands
- For those who may have to leave: uncertainty, Damocles
- Loss of social cohesion, *naastenliefde, noaberplicht*
Requests to the government:
- Interact with us
- Know our interests
- Decide clearly and only once

tional management of the river Rhine and think about long-term sustainability. Their request is that plans are based on detailed knowledge of their interests and that power centres stick to decisions once made.
Remarkably, *postmodern* and *pre-modern* features show similarity in intensified interaction and local social cohesion. A collective relocation, it is felt would result in the loss of *pre-modern* acquisitions and is the most important disadvantage of the Green River plan. The Helhoekers are prepared to prevent this loss with deliberation and skill.

Complex interactions

In addition to their participation *within* the three domains, the stakeholders of the Green River areas manage interactions *between* these domains. Put in more abstract words, the defence of stakes is coloured by interactions between patterns of acting and thinking that belong to respectively *modernity*, *postmodernity*, and *pre-modernity*. These different colourings show in negotiation skills, levels of organisations, alertness, power positions, and access to local and outside resources. It is from these complex dynamics that future measures in the Rhine River basin will result. In turn, these measures will have their consequences for the local population, larger scale society and water management.
The local stakeholders are well aware of the actual and planned interventions and the related arguments given by the government. However, they have serious doubts about the magnitude of climate change and the predicted higher discharge levels in the rivers. They therefore doubt the need for a bypass from the Rhine to the IJssel, though appreciating the construction of a nature reserve area. They mostly suspect technologists and policy makers concentrated in and around the national government centre in The Hague: 'These Hague people have personal interests in large construction works' (see also Table 6).
In their relationships with *modern* state government bodies, the local stakeholders have some confidence in financial compensations for relocation, as was witnessed during expropriation procedures for other infra-structural works nearby. But based on the same experience, they will negotiate financial compensations with skill and determination acquired in the *modern* domain. Their tactics will be reinforced by collective efforts that stem from their strong social cohesion belonging to the *pre-modern* domain. Also, their attachment to the soil and the social cohesion would make them fierce opponents.
In contrast to responses by these 'old families', newly immigrated families are expected to protest most vocally and effectively. Their locals-state conflict would have the flavour of the 'not-in-my-backyard' (NIMBY) reactions to national policies. Nevertheless, both 'old' and 'new' stakeholders consider national interests in a rather balanced way and see ultimate advantages for themselves. Put in other words, conflicts that would make them opponents to other parties tend to be treated rather sensibly.

Table 8
Scenario of maximum local acceptance of Green River

Actors	Necessary activity	Status of the activity
All stakeholders	Shared sense of urgency	Absent
All stakeholders	Shared vision about naturisation	Absent
National government bodies and local stakeholders	Two-way vertical interactions	Mostly top-down interactions
	Official knowledge of local interests	Insufficient
National government bodies	Top-down provision of information	Happens
National government bodies	Decisions clear and only once	Decisions often postponed and reversed
National government bodies	Financial compensations	Good examples available
Municipality councils	Consensus building based on local and external knowledge, and direct interaction	Happens, but with little bearing on river basin management
Mass media	Top-down provision of information	Happens
Schools	Education in environmental awareness	Happens
	Education in multi-stakeholder perspectives	Happens

Another type of balance that appears to exist has to do with emerging social trends, such as naturisation and democratisation. Local stakeholders are not only passively influenced by these trends, but also contribute actively to them and are therefore open to new arguments and material that would have implications 'in their backyard'. Their main requests to the government bodies responsible to large infra-structural works is to first interact with them, acquire knowledge of their interests, and decide clearly and only once in order to avoid that 'uncertainties eat you up'. In response they would be quite co-operative, help avoiding mistakes and contribute to finding technical solutions (see Table 7).

Recommendations

A recommended policy scenario for the maximum local acceptance of a Green River plan is summarised in Table 8. The social trend towards naturisation should mature more and be able to overrule other interests of a majority of stakeholders. The government should convince local stakeholders with proper arguments that the Green River bypass is necessary for safety reasons. The provision of financial compensations and top-down information should be kept at present levels or improved. Government officials have to learn how to listen to local stakeholders, respect their interests and integrate these considerations in policies. Thereafter, decisions should be made once and for all. Municipality councils may be involved as they function with much local knowledge and ability to reach compromises about plans and implementation.

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The British partners concentrate on future management of flood and drought risk in the Thames River basin. The Spanish partners study the same for droughts in the lower Guadalquivir River basin.The Dutch look at the same for floods in the Rhine-Meuse River basin. They have studied institutional aspects and risk perceptions at the national level, and scenarios of future climate that may create higher flood risks.
The present study concerns perceptions and responses of local stakeholders to future changes in river basin management. The stakeholders contributed with care to the research in lengthy interviews, telephone calls, follow-up contacts and casual meetings. The research was discussed in half-yearly SIRCH meetings, two seminars at Delft Hydraulics and scientific conferences abroad. Along with gratitude to the responding stakeholders and participants of meetings, thanks are expressed to Alison Gilbert, Nicolien van der Grijp, Darley Jose, Xander Olsthoorn and Richard Tol for their comments on earlier drafts.

Appendix: Methodology

Data were collected through study of documents, holding of interviews (see Table 9), enquiries on the phone, and observations in the Green River area and Helhoek. Interactions were maintained with Delft Hydraulics, the pressure group Groessen in Protest (GRIP), the students' project of Liemers College in Zevenaar, and members of the European SIRCH project.

Table 9
Number of interviews held

	By phone	Personal	Total
Local farmers	1	4	5
Local residents	0	7	7
Regional informants	1	6	7
Key informants	5	2	7
Total	7	19	26

The study applies the *system-oriented* approach, by looking at interactions between stakeholders that create the commonalities in the language and the cultural cement that bind the actors. This approach contrasts with *actor-oriented* stakeholder studies that collect data of individual actors as if they were isolated units, and statistically process these data at an aggregate level. To be certain, the present study includes divergent perspectives and interests of individual stakeholders and stakeholder groups, but does not regard such divergence as the only part of social reality that counts (Van der Werff and Gupta 2001).
Nearly all cited texts were given in response to questions asked by the researcher. Direct speech is used in order to emphasise the subjective, though shared, story lines that were found to predominate in Green River area. The citations in spoken language indicate the thinking of local stakeholders about how to deal with future management alternatives.

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